

Royal Commission on Electric Power Planning

Government
Publications

CA20N Z1
-75EO1



1st Report

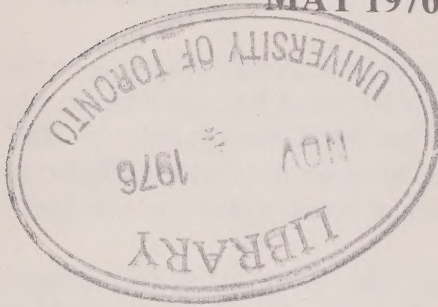
CA26N-Z1
- 75E01

Shaping The Future

Government
Publications

THE FIRST REPORT BY THE ROYAL COMMISSION ON ELECTRIC POWER PLANNING

MAY 1976



"These hearings may well be the most important in this decade. The sheer scope of factors and values embraced in a public debate on long-term planning should involve all aspects of Ontario's future — economic, social, environmental, agricultural, urban planning, industrial growth and so forth.

The hearings should also bring into public focus basic philosophies about much of the kind of life we want for the next century and what price we are prepared to pay for its achievement."

The Honourable Allan Grossman

TERMS OF REFERENCE

The Royal Commission on Electric Power Planning, has been empowered and instructed to

- 1) Examine the long-range electric power planning concepts of Ontario Hydro for the period 1983-93 and beyond and to report its findings and recommendations to the Government, so that an approved framework can be decided upon for Ontario Hydro in planning and implementing the electrical power system in the best interests of the people of Ontario;
- 2) Inquire comprehensively into Ontario Hydro's long-range planning program in its relation to provincial planning; to domestic, commercial and industrial utilization of electrical energy; to environmental, energy and socio-economic factors, including but not limited to matters such as electric load growth, systems reliability, management of heat discharged from generating stations, interconnecting and power pooling with neighbouring utilities, export policy, economic investment policy, land use, general principles on the siting of generating stations and transmission corridors, efficient utilization of electrical energy and wise management (conservation) of primary energy resources, power generation technology, security of fuel supplies and operational considerations;
- 3) Deal primarily with the broader issues relating to electric power planning, and thus serve to alleviate the need for re-examination of these issues at subsequent hearings of other hearing bodies on specific details such as siting, rates, etc.;
- 4) Consider and report on a priority basis on the need for a North Channel Generating Station, a second 500 k.V. line from Bruce, a 500 k.V. supply to Kitchener, a 500 k.V. line from Nanticoke to London, and a 500 k.V. line in the Ottawa-Cornwall area, and other projects as may be directed by the Lieutenant Governor in Council.

Royal Commission on Electric Power Planning

7th Floor

14 Carlton Street

Toronto Ontario

M5B 1K5

Dear Fellow Ontarian:

This is the First Report of the Royal Commission on Electric Power Planning. We expect to publish at least one more such report before our Final Report is presented to the Government of Ontario.

Our purpose in publishing a First Report at this stage of our work is fourfold; first, to describe briefly how and why the Commission was established; secondly, to give an account of the Commission's activities to date, especially those relating to the preliminary public meetings; thirdly, to summarize the issues and concerns which were identified at those meetings; and fourthly, to explain how we expect to continue with our inquiry.

In this Report we have not set out in detail all the concerns and issues which have been raised; these, of course, are available in our Information Centre in the form of the original written submissions to the Commission. Instead, we have singled out those concerns which seem the most significant and we have presented them in the language in which they were presented to us.

As we have stressed on so many occasions, openness is our firm policy. If, therefore, you find any gaps or misinterpretations in the material here presented or if you have any objections to our proposed mode of procedure, we hope you will let us know.

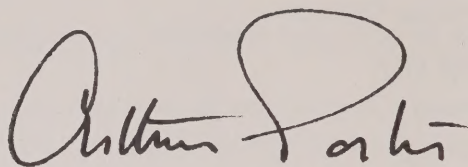
Public participation in the Commission's preliminary public meetings, often held in both languages, was, as this first report makes clear, lively and widespread. It is with real appreciation, therefore, that we thank all of the participants in those meetings especially those who took the trouble to submit, and then appear in person, to present briefs.

It was gratifying also that the English and French media cooperated enthusiastically in reporting on our activities. Special mention should be made of the open-line radio programmes which so encouraged public participation.

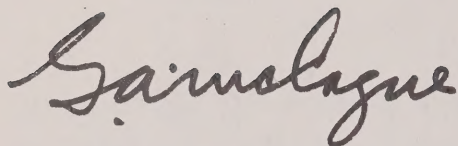
We should also like to thank all those people who voluntarily assisted in many ways to make our meetings a success.

Our appreciation of your cooperation and participation is sincere. As the inquiry proceeds we hope to widen and deepen the level of public understanding and we trust this First Report will give the necessary impetus to do just that.

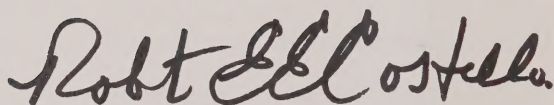
Yours sincerely,

A handwritten signature in dark ink, appearing to read "Arthur Porter". The signature is fluid and cursive, with a large loop at the end.

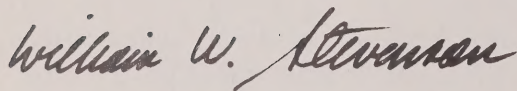
Arthur Porter
Chairman

A handwritten signature in dark ink, appearing to read "George E. McCague". The signature is cursive and somewhat stylized.

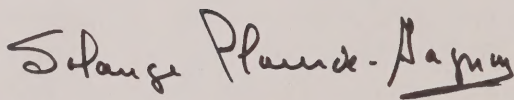
George E. McCague
Commissioner

A handwritten signature in dark ink, appearing to read "Robert E. E. Costello". The signature is cursive and somewhat stylized.

Robert E. E. Costello
Commissioner

A handwritten signature in dark ink, appearing to read "William W. Stevenson". The signature is cursive and somewhat stylized.


William W. Stevenson
Commissioner

A handwritten signature in dark ink, appearing to read "Solange Plourde-Gagnon". The signature is cursive and somewhat stylized.

Solange Plourde-Gagnon
Commissioner

Table Of Contents

I. The Challenge	7
The Team	9
First Steps	10
Initiating the Research	11
Public Opinion Survey	12
Workshop	12
Public Funding	13
II. The Preliminary Public Meetings	14
Format	14
The Lecture	14
Scope of The Meetings	15
The Public Dialogue	16
III. Those Who Provided Written Submissions	32
IV. Current Activities	39
Research	39
Reliability of Electric Power Supply	39
The Conservation of Electrical Energy	41
Land Use and Transmission Systems	42
Environmental and Health Studies	43
Alternative and Emerging Technologies	43
Priority Projects	44
The Public Information Hearings	46
V. The Way Ahead	48



Digitized by the Internet Archive
in 2023 with funding from
University of Toronto

<https://archive.org/details/39200719120074>

I The Challenge

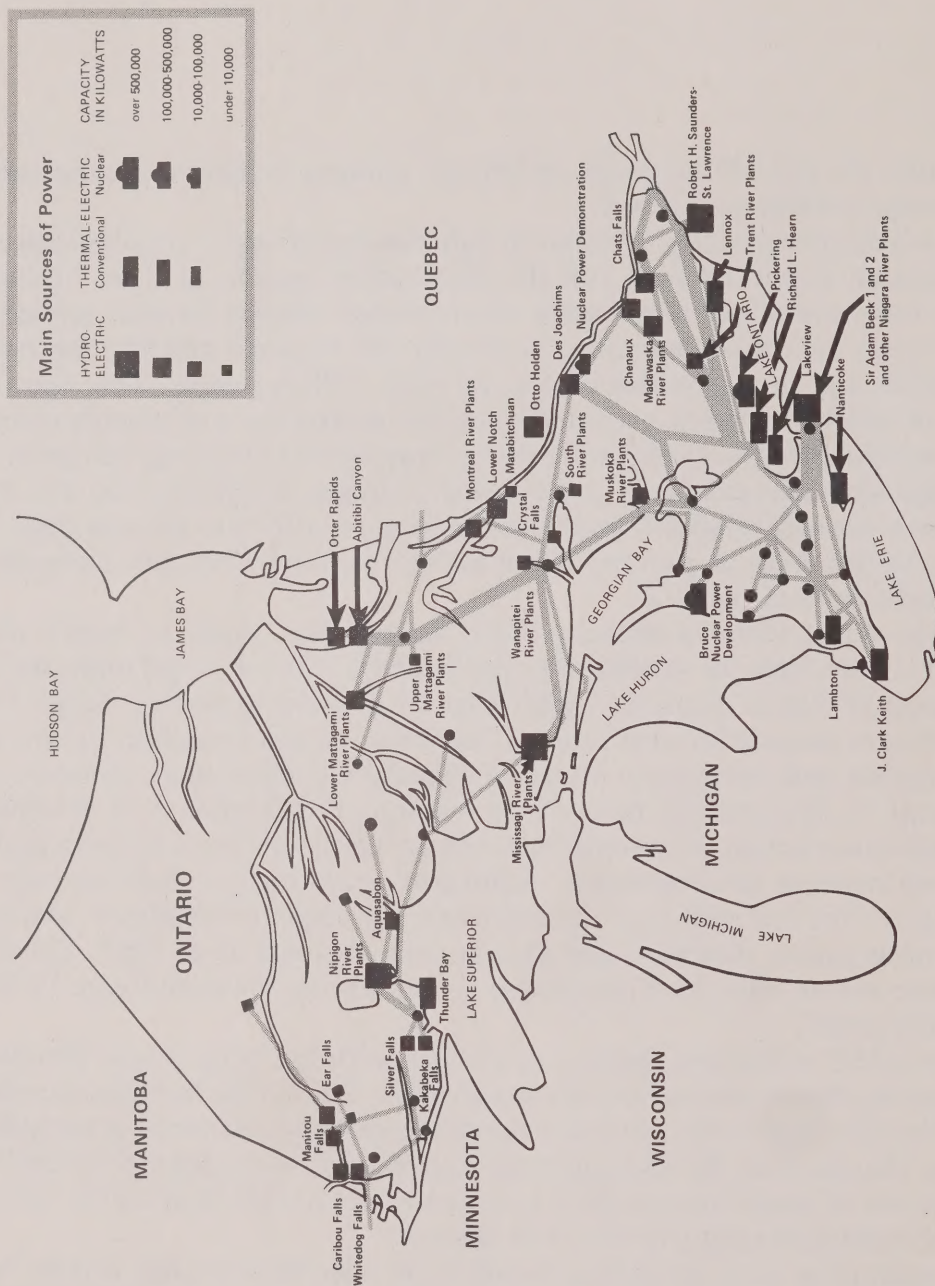
Is the future life style of the people of Ontario going to be tied to the consumption of energy in large quantities?

Ontario's electric power system has to date developed into a complex network which through Ontario Hydro and the distribution systems of three hundred and fifty-three municipal and several other private utilities, delivers service to various classes of customers in an area of some two hundred and fifty thousand square miles and to a population of some eight million people. This network consists of widely dispersed generating stations producing a constantly changing but continuous flow of electrical energy transmitted over long distances. It has to cope with changing daily and seasonal patterns of consumption and also has to have enough reliability built into it to cope with line failures due, for example, to lightning in summer, wind and ice in the winter and unforeseen mechanical failure of any kind.

Over the years, Ontario residents have, nevertheless, come to expect, as a matter of course, that the system will supply their needs, whatever those are. In anticipation of future demands there must be forward planning, design and construction to provide for alterations to the system to accommodate an increasing population and changing patterns of electricity consumption. (Historically the increase in demand has been 7% per annum.) This process of planning, design and construction for generating stations may extend from seven to twelve years from concept to completion. Additional transmission facilities have a shorter lead time but still need several years for their development. Ontario Hydro's programme, therefore, has already been reviewed up to 1983. And this is the basic reason why the Commission is considering the time-frame "1983-1993 and beyond".

Report 556SP of Ontario Hydro, which deals with the Long-Range Planning of the Electric Power System, already has clearly indicated the immense number of variables that have to be taken into account especially when the consumption of energy, the planning for its generation and the necessary steps to transmit it are all related to people not yet here, to communities not yet built and to factories for the making of products not yet thought of.

The continuing and increasing demand for electrical energy clearly has serious implications for society as a whole. It is not just the question of food-lands being taken over for generating stations and transmission lines, nor the cost and availability of finite resources of fossil and nuclear fuels. Nor is it even the availability of funds — funds in enormous quantities — for power system expansion, although the allocation of those funds has to be made by a Government committed to paying for many other essential services and programmes.



The fact is that the shape and growth of our future society is inextricably bound up with the future utilization of energy.

The above considerations necessitate review by the people of the Province, as our Chairman said in his initial letter:

"You will be given every possible opportunity to express your opinions on the use of electricity, on the rate of growth of the electric power system, on environmental questions which relate to the generation and distribution of electricity, and most importantly, on how electrical energy can be conserved. And, if you think this is a very tall order, you are right. . . we are in effect, inviting you to participate in inventing the future of this Province and you will agree that there are few more worthy causes, since not only your individual lives and values are in the stakes, but also those of your children and grandchildren, most of whom are yet unborn."

The Team

The Government was concerned that so wide-ranging an inquiry should not be conducted just by technical experts but by people whose interests are equally wide and diverse. Appointed to serve were:

Dr. Arthur Porter, Chairman.

Professor of Industrial Engineering in the University of Toronto, former Dean of Engineering at the University of Saskatchewan; former Professor of Electrical Engineering at the Imperial College of Science, London, England; past chairman and a continuing member of the Canadian Environmental Advisory Council, and a Fellow of the Royal Society of Canada.

Solange Plourde-Gagnon.

A housewife and mother who, as a journalist, formerly covered the Ontario Legislature for *le Droit*, and who will concentrate on questions relating to the consumer of electricity in the home.

Robert E. E. Costello.

Vice-President, Corporate Services, Abitibi Paper Company Ltd., industrialist and engineer with long-time associations with Northern Ontario who will have special responsibility for studying and reporting on the Priority Projects.

George E. McCague.

A farmer, advisor on agricultural affairs to governments and a former executive of the Ontario Federation of Agriculture who will concentrate on the special concerns of the farming community.

Dr. William W. Stevenson.

An economist with special interests in the field of energy systems, member of the Ontario Energy Board, and presiding member at the 1975 Ontario Hydro Rate Hearings.



The senior staff of the Commission consists of: —

Ronald Smith, M.B.A. — Executive Director.

Mr. Smith is senior partner in the consulting firm of Smith, Auld & Associates Limited, where he has been involved mainly in policy and long-range planning relating to resources development and land management for all three levels of government.

Robin Scott, Q.C. — Legal Counsel.

Mr. Scott has served as a legal advisor to the Ontario Government in energy matters and comes to the Commission from the Ministry of Energy, where he was Executive Coordinator, Regulatory Affairs.

Robert Rosehart, Ph.D., P.Eng., — Scientific Counsellor.

Dr. Rosehart is Associate Professor of Chemical Engineering at Lakehead University and a consultant who comes to the Commission with a strong interest in environmental assessment.

Kenneth Slater, B.Sc., B.E., M.Appl.Sc., P.Eng. — Director of Research.

Mr. Slater has been a Senior Engineer with Ontario Hydro, focusing on development work and, most recently, Manager of Engineering (with research responsibilities) for the Ontario Energy Board.

Marc Couse — Public Participation Coordinator.

Mr. Couse served as an assistant to the Executive Director of both the Ontario Royal Commission on Book Publishing and the Ontario Commission on the Legislature.

Ann Dyer, B.A.

Ms. Dyer has had extensive experience in systems development and data organization and will set up and operate the Information Centre.

First Steps

Several highly significant inquiries and reports which relate directly or indirectly to electric power planning in Ontario were studied by the Commission. Of particular relevance were:

- 1) The Report of the Ontario Advisory Committee on Energy (1971) which reviewed the future energy requirements and supply for Ontario;
- 2) the Reports of Task Force Hydro (1972-73) which examined the operations of Ontario Hydro and made specific recommendations;
- 3) the Reports of the Solandt Commission (1972-75) which inquired into and made recommendations for specific 500 kv. transmission routes;
- 4) the Reports of the Ontario Energy Board which were concerned with system expansion (1974) and rate review (1974-75);
- 5) Report 556SP (February 1974) — a report which indicated Ontario Hydro's long-range planning concepts and included several alternative future scenarios;
- 6) Ontario Hydro's Preliminary Submission to the Commission, (May 1975).

During this study period the Commission also met informally with Ontario Hydro, various government ministries, many public interest groups and individuals to discuss the terms of reference of the Commission and to identify issues and concerns. As a result, a document summarizing issues and concerns under the following subdivisions was developed: growth, economic factors, land use and regional implications, environmental concerns, conservation, electric power generation and transmission, technological factors, implications beyond Ontario and the planning and review mechanisms. This document was widely circulated.

Initiating The Research

An important consequence of the previously mentioned studies and the briefing sessions was the fact that, at an early stage in its work, the Commission was in a position to identify its future major research objectives. These were fourfold:

- To evaluate and classify previous studies into the specific areas covered by the Commission's terms of reference, and especially to consider their relevance to the social, economic and technological conditions and developments in Ontario.
- To identify those areas in which further research, to be undertaken by the staff of the Commission or by outside consultants, is needed, taking into account continuing research programmes in Ontario Hydro and the government ministries. An important example is the existing need for in-depth studies of the factors, both quantitative and qualitative, involved in an adequate statement of electric power system reliability, together with the criteria, methods and models necessary to make valid reliability assessments.
- To prepare reports on specific topics identified, for example, by the Commission, by public interest groups and by individuals. Topics include energy conservation, the storage of electrical energy, solar energy, electrical energy obtained from solid wastes, etc.
- To facilitate the education of all citizens and students of the Province in matters relating to energy and electric power system planning and how they might affect future lifestyles.

Public Opinion Survey

At the same time as the Commission was developing the list of public concerns and organizing its research, we also initiated a pilot study of people's awareness of, and attitudes towards, future expectations of the supply and use of electrical energy in the Province. This was a study based on interviews with a statistical sample of one hundred people, male and female heads of families in Metropolitan Toronto. Its purpose was to establish a methodology on which to base a province-wide study which is now being undertaken.

While emphasizing the small size of the pilot study, it is interesting to note at this point in the Commission's investigations, the following attitudes expressed:

- 1) 52 of the 100 respondents expressed an interest in participating in some way in the Commission's investigations;
- 2) 55 felt that there are presently quite serious problems of pollution in land, air and water in the Metropolitan Toronto area;
- 3) 82 felt that governments should not only become more involved in planning energy requirements, but many of that number felt the Ontario Government should directly control the supply of energy and how it is to be used;
- 4) 84 expressed support for genuine conservation measures which would relate to the less prodigal use of heating, oil, gasoline, electricity and natural gas.

Workshop

In October 1975, the Commission sponsored a two-day workshop in Toronto, organized by the Canadian Environmental Law Association and Energy Probe. Almost thirty interest groups and individuals participated representing province-wide as well as regional and local interest groups.

The participants attempted to identify common concerns and issues initially and then segregated themselves into several working groups to identify research priorities and resources. The result was the formation of two province-wide umbrella organizations:

- Foodlands Steering Committee, a group with representation from several local and provincial agricultural organizations;
- Nuclear Environmental Group, consisting of several geographically dispersed groups who share common environmental and health concerns associated with nuclear power.

Identified as a major concern was education where it was felt two problems exist: first, the lack of readable material on certain topics and second, on a wider basis, the need to further disseminate existing information.

A plenary session discussed at some length how hearings could be better conducted, how new opportunities could be given for improved public participation and how new funds might be made available to achieve this end.

The workshop served to bring together a diverse group who unanimously agreed that the experience had been worthwhile and would enhance their participation in the inquiry.

Public Funding

On March 13, 1975 the Honourable Allan Grossman, at that time Provincial Secretary for Resources Development, in a statement in the Legislature announcing the formation of the Commission stated:

"We are taking this Government's commitment to public participation in the planning process a major step forward by providing funding for potential participants at the hearings. This funding of public involvement in the planning process is purely experimental. It is the first time such a direct step has been tried by this Government. The Commission will be allocated funds for distribution to participants."

The Government's interest in the funding experiment was further reinforced when, during a speech in the fall of 1975, the present Provincial Secretary for Resources Development, the Honourable Donald Irvine stated:

"The objective of this experiment, is to ensure that no person or group is prevented from contributing to the hearings merely from lack of funds. We want this Commission to be accessible to as many people as possible."

With this encouragement the Commission released, in late October 1975, a preliminary statement on the funding of public interest groups and individuals with the objective of encouraging a broad cross section of Ontario citizens to become involved actively in the work of the Commission especially by developing and presenting submissions. We asked groups and individuals to make applications for funding assistance promptly.

To date the Commission has received twenty requests for assistance. Many propose to conduct research projects which are on topics contained in the Commission's terms of reference. These include studies in nuclear safety, land use and the effects of transmission on farm land and the human environment, ongoing planning review mechanisms for Ontario Hydro, energy conservation and the economic, environmental and social impact of Ontario Hydro's expansion programme. In addition a number of requests were for funds to assist in the Commission's educational and information dissemination role.

After reviewing the requests for funds, the Commission recommended to the Government that for the year beginning April 1, 1976, an amount of \$150,000 should be provided for the public funding programme. Subsequently, this amount has been approved by the Government. Eleven of the research-oriented projects have now been funded.

In the area of education, information flow and effective representation, the Commission was encouraged by the proposals put forward independently by three interest groups. It was decided that a portion of the funds be set aside to establish an Office of Public Interest to serve the interest groups and the general public. The Commission recognizes that this Office must be independent. It is expected that the three organizations who made the original submissions as well as others will be involved in the establishment of this Office which can act in the preparation of briefs, act as an independent source of information both into and out of the Commission and follow all Commission hearings.

II The Preliminary Public Meetings

Format

At each of eight centres the format of the meetings was the same. On the first evening our Chairman delivered an illustrated lecture entitled "Man's Heritage — Man the Toolmaker".

During the afternoon of the second day there was a formal meeting at which briefs were submitted and the presenters of the briefs were questioned by members of the Commission. In the evening of the second day, in addition to some written submissions, the public was asked to participate in a more intimate question and answer session.

Informal evening meetings were also held in nine additional centres across the province.

The Lecture

The lecture began:

"I begin with man himself, because, although the technological aspects of this Commission are, of course, important, the humanistic, social and economic implications of electric power planning are probably even more so. In other words, the cultural aspects are central. I cannot overemphasize this fact. More than ever one of society's main aims should be to fit technology to itself.

Throughout most of man's recorded history his toolmaking achievements have been aimed at fulfilling the needs of people. And these needs have usually necessitated aesthetic as well as utilitarian components."

It continued with a sequence of slides which illustrated how man's technology has evolved from the primitive hand-axe of 100,000 years ago, to the communications satellites and the brain scanners of today. Our Chairman then introduced the concepts underlying the generation of electric power, went on to explain the Commission's terms of reference and later speculated on some of the issues and concerns which had been raised. He ended his presentation with:

"Society as a whole appears to be undergoing a major cultural transition — some people refer to it as a transition from an industrial to a post-industrial society. One of the manifestations of this is that we are living in a period of appreciable uncertainty. But it is uncertainty that spurs on the process of invention — not only scientific and engineering inventions, but,



perhaps even more significant at the present time, inventions which will relate to innovations in our social institutions. Furthermore, the inventions we will be seeking can only emerge in stimulating and essentially educational environments. These we will try to stimulate. The development of curiosity and imagination coupled with the courage required to implement the ideas which a majority of people feel should be tried out are essential ingredients. If the enthusiasm of the Commissioners and the staff of the Commission is a criterion I am certain that we will complete our job satisfactorily."

Scope Of The Meetings

Between October 28, 1975 and January 22, 1976, the Commission travelled to 17 different centres, held 35 public sessions and received 265 written submissions and 163 additional oral submissions from the over 3,000 participants as detailed on the back cover of this Report. At Wingham, the submissions were so numerous that another meeting had to be scheduled for a later date at nearby Listowel.

Such enthusiasm was shown everywhere but particularly in the most distant location in which we met, Kenora. There we were told: —

"We are particularly pleased to have a Royal Commission to Kenora and recognize that, while we are not the biggest place in Ontario, maybe we are the most important. We like to think so anyhow."

The variety of people who have so far appeared at the Commission's meetings — representative of the interest of society at large in the questions before the Commission — includes mayors and delegates from a number of organizations concerned with the environment, the role of the consumer and the preservation of the natural landscape, members of the provincial legislature, reeves, delegates from Chambers of Commerce and the public utility commissions. There were, as well, a number of concerned citizens, some of whom as university professors, professional engineers, teachers and industrialists, had particular expertise and information to offer.

The Public Dialogue

The question of growth, and the part energy plays in it, that is, the issues having to do with future demands for electric power predicated on a continually increasing industrial and residential development, were of prime concern to participants at most meetings. They came at the question, however, from two very different and easily identifiable points of view.

On the one hand were the public utilities, industrialists, and professional engineers who generally accepted a continuation of historical growth patterns.

On the other hand were the environmentalists and conservationists who challenged such growth, asking whether there were not valid ways of curbing what to them is a potentially dangerous expansionary cycle.

It was clear that there is a major challenge for the Commission in trying to reconcile these two views.

Those submissions and participants who came before us from the utility commissions, engineering faculties of universities, and professional engineering groups, tended to anticipate a future predicated on continued growth of electric power. Furthermore, some individuals associated with industry expressed concern with the delays in the decision-making process which they contended will inevitably delay electrical power facilities being put into service in sufficient time to meet increasing demands. Those who support unequivocally a continuation of the 7% per annum in growth in peak electric power demand based their predictions on such factors as: —

- 1) The vital need in the future, as witness the past, of a highly reliable electric power system designed to meet the demands of an increasing population and concomitantly increasing industrial demands, commercial demands and domestic demands.
- 2) The effectiveness of the load forecasting methodologies which Ontario Hydro has utilized in the past and which it contends will apply equally in the future.
- 3) With the increasing pressures on Canada's, and indeed the world's dwindling supply of crude oil and natural gas (coal is still in reasonably good supply and will be during the foreseeable future although the cost of mining and transportation is escalating markedly), they argue that electric energy will increasingly replace fossil-based energy. (This, of course, inevitably implies that uranium will largely replace fossil fuels as the major fuel for electric power generation in Ontario during the decade 1990-2000.)
- 4) In view of the fact that at present Ontario imports about 80% of its energy requirements, and in view of the fact that security of this supply may be threatened in the future, it is argued that increasing use should be made of Ontario's indigenous energy resources of uranium and thorium.
- 5) In connection with 3) above, many of the public utility commissions contend that there will be, and already is, an increasing trend to heat homes, apartments, commercial buildings, etc., electrically, thereby increasing the peak demand for electric power.
- 6) While most of the protagonists of continuing growth (at present rates or slightly higher) endorse the concept of "energy conservation" they suggest also that current levels of "standard of living" are in large measure irrever-

sible, except under major crisis conditions, and that the gains to be expected from "conservation practices" will probably not balance the increasing demands for electric power. This general point of view was summed up by a participant in Welland who stated: —

"The economic well-being of industry in Ontario is inextricably bound with the well-being of Ontario Hydro." And a participant in Hamilton said: —

"Our worry here and what we would like more assurance on is that our industry which provides such a great number of jobs is going to be assured and we can assure it — that it can expand its plants to keep the goods going and keep up our export markets and provide employment for such a large number of people in this region."

The Northern sections of the province were even more vehement. In Thunder Bay it was remarked: —

"One of the first priorities of this Commission should be to publicly state that Northwestern Ontario will not become the sacrificial lamb to the pundits of doom and zero growth and that the special requirements of this frontier of Ontario will be acknowledged."

This view was reinforced in Sudbury: —

"We see a continuing high level of electric load growth in Northern Ontario as a great emphasis is placed on resource recovery and processing. Within the time frame it will take to complete this generating station the peak load in Northeastern Ontario could increase to 2500 megawatts."



Industrial use of Electric Power

And in Timmins: —

“Since this municipality is located in that part of the Province where it is anticipated that potential exists both in the natural resource industries and other related industries the necessity for the availability of electric power and energy for the development of industry and for the population growth of the North is of very great importance. Not only must electrical power and energy be available to permit and support the industrial and population growth, but it must be available at prices to permit the industries to compete both in national and international markets.”

Furthermore, some remote northern communities do not have a reliable supply of electric power, as an Armstrong resident told us at Thunder Bay: -

“I ask you gentlemen, what can be done to ensure Armstrong has access to essential services in the North, one of which is hydro power, at a cost comparable to that enjoyed by other residents in the Province of Ontario.”

How can the future demand for electric power be satisfied if the supply of fossil fuels may be limited and potential new hydro-electric sites in the province are few? A participant in Toronto made a strong plea for nuclear energy: -

“It is nuclear power which will be the main, primary power source in Ontario. Unfortunately, it can be made available to the consumer only via electricity, a circumstance not likely to change in the foreseeable future . . . Ontario engineers will be and remain in a leadership position as far as nuclear power is concerned. Ontario engineers will have to tackle new yet-to-be-developed technologies ahead of engineers of other provinces or countries. Electric power, after all, also appears in many respects, such as versatility, cleanliness, to be superior to other forms of power.”

The question of lead time was also a constant question amongst those people who wanted to be assured that electricity supply would be equal to their demands on it.

The construction of major generating plants either thermal or nuclear may take seven to twelve years from proposal to commissioning. Those people who are looking for economic expansion in the Province particularly in the eastern and northern areas as well as the heavy industrial areas of the southern part of the Province had a proper concern that our deliberations should not take so long that they delay the start of new facilities to a point where they will not be on line when they are needed.

As a participant from the Scarborough Public Utilities Commission said: -

“My main concern in being before this hearing is to advance a plea that while recognizing the advantages of having access to public input, the overall community interest be kept in the forefront. It is perhaps presumptuous of me to bring this point before this distinguished panel, however, we are beginning to see for the first time in my experience a situation where a possible shortage of energy to supply our needs in Scarborough is developing because of matters over which we, as a community, have some control. I refer to the delays being experienced in bringing plant on line due to protracted public hearings and delaying tactics of special interest groups.

In the area of growth we are already beginning to experience a shift from

the fossil fuels to electricity in the area of house heating because of the uncertainties in the supply of both oil and natural gas. To what extent this will be escalated again is a matter for conjecture. This is in spite of our total withdrawal from any promotional activity in this area. In the field of energy consumption to a large degree we are sensitive to temperature variations. A concern I have for the future is that it will not be the blue-eyed Arabs of Alberta, but our own actions that will have future residents of our community freezing in the dark."

On the other hand, however, planning ahead, particularly when the Commission is asked to look, not only at the decade 1983-1993, but beyond, implies the use of assumptions in social planning which may or may not be valid for the future. As the Sierra Club said in its brief: -

"Because of increasing lead time associated with construction of power plant facilities the electricity generating industry finds itself projecting its output farther into the future than ever before. These future projected output plans, if executed, will have a significant influence on the environment as well as on the various components of the economy. Therefore, the importance of developing and applying meaningful and hopefully accurate forecasting needs is apparent."

Another dimension of the same view came from an Owen Sound participant who reminded the Commission that: -

"The fundamental objective of planning for electric power development should be to benefit people as people perceive their needs and interests to be. The planning should provide all Ontario citizens with the best possible opportunity for a quality life style including the necessary economic success to support it."

Conserving energy and restricting growth were issues raised at virtually every meeting:

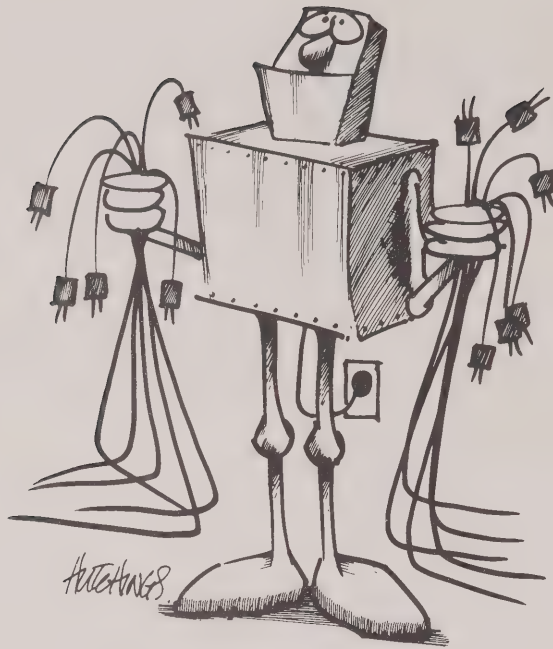
In Thunder Bay, one participant put the matter clearly: -

"... there should be negative growth in per capita energy consumption until we find at least some level that can be sustained indefinitely with present known resources."

In Sudbury, another participant suggested there should be legislation to control energy consumption: -

"We are encouraged by business and industry to buy more and more energy consuming goods thus creating the demand for energy. It is time to break this vicious cycle. It is time to halt this energy monster which had its beginning at the first waterfall and is steadily growing and demanding more. We need more power just to keep the monster alive."

We do not want to give up our lands and rivers to endless power dams; and our fields to a network of power lines. There are many steps the government could take to encourage conservation of energy; education in the many ways of saving energy even on a household level would be a worthwhile venture; campaigns to increase the public's awareness of this vital issue could be supported by taxes and grants. Direct legislation might even be necessary in some cases to conserve energy."

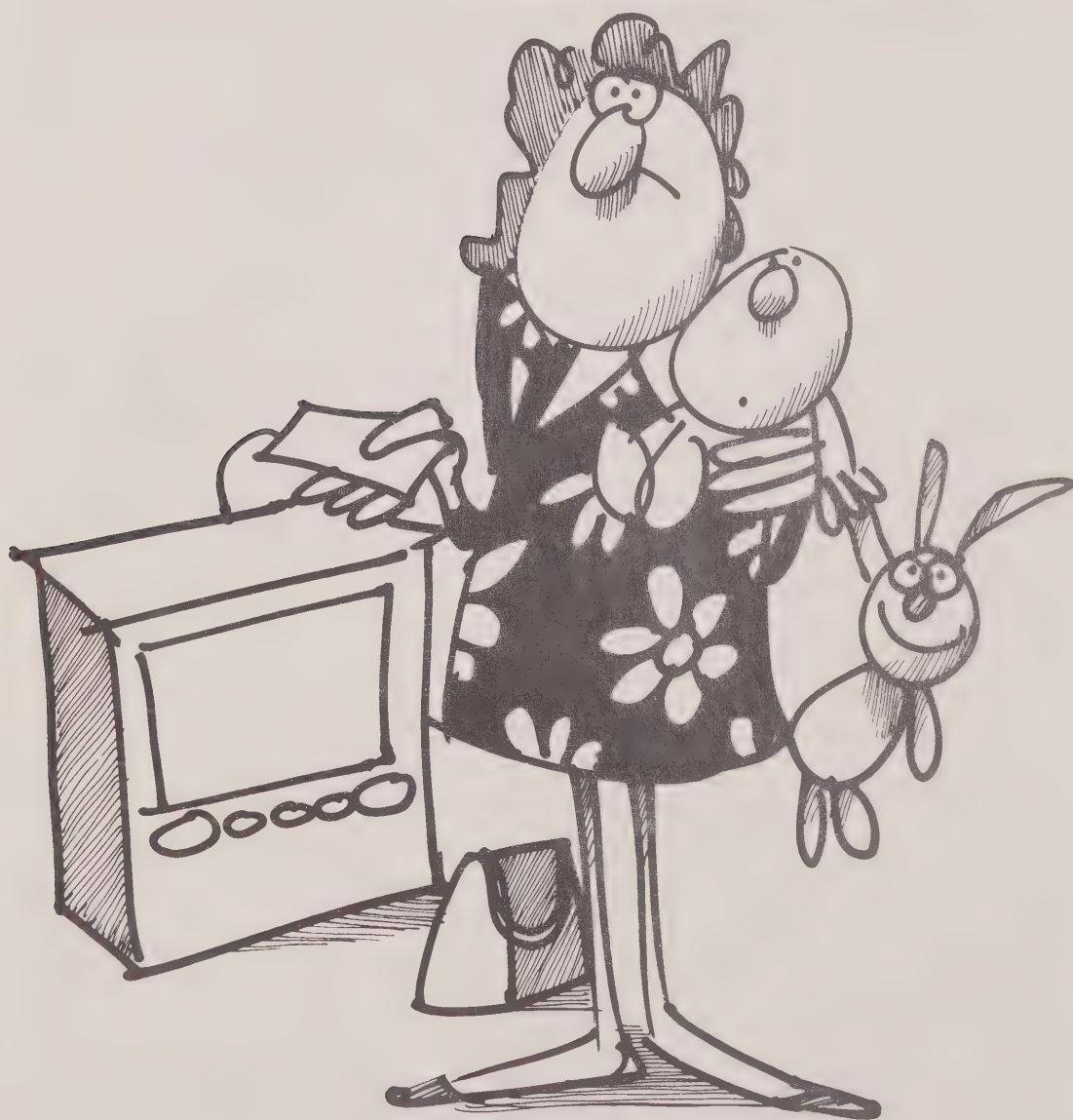


"The Energy Monster"

In Hamilton, a participant gave twelve steps to conserve electricity: -

- "1) lower residential utility rates for off-peak consumption, and conversely;
- 2) higher residential utility rates for peak period consumption;
- 3) general rate reform for residential use to: -
 - a) encourage hydro conservation;
 - b) encourage hydro use at off-peak times;
 - c) encourage remedies for rising power billings;
 - d) encourage better home maintenance;
 - e) encourage change in living habits — resulting in less draw peaks;
 - f) encourage rewards with off-peak usage;
 - g) discourage purchase of luxury items;
 - h) discourage sudden peaks of usage.
- 4) materials and equipment which contribute to lower power consumption, and this also includes gas, oil and coal, or increased efficiency, should receive more consideration under the Income Tax Act and the Sales Tax Act.
- 5) luxury items should have the rates of sales tax reviewed to discourage general consumer use. Some examples might be instant-on TV, trash compactors, electric blankets, pool heaters, electric toothbrushes, electric lather-warmers.
- 6) items of heavy current draw such as water heaters, electric resistance heaters, clothes dryers, air conditioners and dishwashers should be regulated and automatically turned off at peak hours. These I would call deferral loads.
- 7) municipal utilities should be encouraged to use two-rate meters which would: -

INSTANT-ON SALE
YOU CAN'T AFFORD THE TAX



- a) sample peak demands at random periods which should encourage load balance by consumers and,
 - b) penalize for load imbalance by billing procedures.
- 8) conditions may now be favourable to explore one other choice in billing procedures, although far reaching in scope, and that would be seasonal pricing of utility rates.
 - 9) the Commission may wish to explore the area of a quota incentive system for consumers which would result in a preferred rate which could be applied annually and then adjusted on a 13th billing basis.
 - 10) currently municipal hydro rates encourage us to achieve a lower rate per kilowatt hour. This procedure should be reversed to discourage indiscriminate power usage and possibly tied in to the previous point made.
 - 11) consider the formation of a committee to establish priorities for a public education program on energy matters to increase (and I use the word) awareness of all matters relating to energy.
 - 12) encourage the development of a more efficient air exchange heat pump system which can function in our climate without the benefit of additional resistance heaters to supplement deficiency in cold weather."

And in Kingston, someone challenged the basic view of Ontario Hydro in forthright terms: -

"In a conserver society we will be forced to re-assess all our views to be sure that the adage 'More is Better' has been eliminated from our thinking. This applies particularly to the Hydro forecast that demand for electric power will increase at 7% per year. Have we any right to establish generating capacity based on non-renewable resources to satisfy increasing demand at this rate? Should we not try to educate the public and industry to eliminate unnecessary and/or inefficient forms of energy use, even at higher short-term expenditures, so that the total load will increase at a considerably lower rate?"

And in Sudbury, a participant put it almost lyrically: -

"I listened to people talking about how fast Ontario is growing and when I look at that, I don't know, but I know how long it takes a spruce tree to grow and I know also how long it takes to develop an inch of top soil."

Often experience in other countries was cited, especially the example of Sweden which has about the same population as Ontario but consumes only about two-thirds per capita of the amount of energy consumed in Ontario.

Pointing out a common Scandinavian practice, an industrial brief presented during the Windsor meeting suggested that the Commission consider for Ontario the concept of: -

"... regional energy centres where a power generating station (providing electricity for residential/commercial users) would at the same time provide associated industries with their energy requirements. This would specifically include the possibility of providing either steam or hot water for industrial users."

And in Toronto, another participant reminded the Commission about Denmark: -

“Denmark has a national goal of a zero rate of increase in the per capita consumption of energy by 1985. Public policy will be designed to achieve this goal. Hence, policy is goal-directed, not trend-driven. Ontario must also come to grips with what ought to be the goals for per capita consumption of energy and electric energy consumption.”

Finally, in Ottawa, another participant placed a major question facing the Commission squarely in front of us: -

“From an *a priori* point of view, there can be no question but that the placing of conservation on an equal footing with production is logical. A supply-demand gap can be filled either by increasing supply or by cutting demand.”

There was universal concern shown for the preservation of foodlands. In Listowel, where the lively presentations by farmers were continued from the adjourned meeting in nearby Wingham, we were given some facts from which to proceed: -

“At present there are 3.5 billion people in the world to feed and by the year 2000 there will be 7 billion. Each day, there are 180,000 new mouths to feed.

On an annual basis, the world's agriculture will need to provide an additional 230 million tons of cereal; 40 million tons of sugar; 60 million tons of meat; 140 million tons of milk together with the feeding stuffs to sustain these increases.

In Ontario in 1971, we had 10.9 million acres of improved farm land. In the past 30 years, 2.5 million acres was lost from agriculture, with almost half of this taking place in the last 5 years — 200,000 acres in one year. At this rate, half of the present foodland in Southern Ontario would be out of production by 2000 A.D. and the remainder would be gone by 2025 A.D.

To maintain our Canadian standards even with an increase of 70% over the next 25 years, we would require an average of one acre per person to feed our own population. This would mean a requirement of 12 million acres for food production to feed the Ontario population of 2000 A.D. There were only 10.9 million acres of improved land in 1971 and in the ensuing four years this has probably been reduced to little more than 10 million acres at the present time. It would now appear that even with 70% increase in production on land current in production, it will be necessary to bring another 2 million acres of land into production.”

In face of which facts the participant suggested a particularly provincial solution:

“There is a substantial area of less productive land which might be brought into production particularly in Northern Ontario. The estimated cost of bringing this land into production for roads, drainage, clearing is at \$1,000 per acre. In addition, the production of food in a Northern climate is more costly and completely eliminates certain types of crops such as white beans, and this additional cost recurs annually.

That is a point we want to bring out that in this type of Northern land that this additional cost is annually, per year.



Guiding housing, commercial or industrial users of land to non-food-land areas or at least to lower classes of foodland, constitutes a one-time cost and would enable Ontario to retain its capacity for efficient production, which in turn means retaining the lowest practical cost of food.

What we mean here is that it may cost a lot at the time to move industry or such like to poorer land but that is only a one-time cost compared with trying to grow agricultural products on poor land, which is a yearly occurrence.

Hydro availability determines where industry and housing must be located, therefore Hydro's locating in the centre of large agricultural tracts of Class I and II land must be prohibited."

All of which was summed up with unconscious but grim humour, when one participant in Listowel said: -

“The future of Junior Farmers’ Organization looks excellent providing that we have a good future in agriculture.”

In qualification of which, the participant went on to say: -

“Once all of our good land is taken up by smoke stacks, parking lots, sprawling factories and the issue at hand, the hydro power lines, where do we go then?”

At the largest preliminary meeting, held in Wingham, specific concerns were expressed about protecting the highly productive foodlands of Southwestern Ontario. In particular one participant stated that:-

“This present impact on the area, and, even more important, its future impact on this area, we are concerned about the effects of transmission lines and corridors to transmit the power to the cities which will need this power. We are concerned about the effect that these lines and corridors will have on the land, the livestock, the people, the farms and the communities through which these lines pass. We are concerned about the total impact, the total impact of this programme, of its effect on the producing ability of the most productive food producing area in Canada; and that is Western Ontario.”

Also at Wingham a member of a farming association concluded that: -

“1. Perhaps the load requirements’ forecast is examined by too few. Ontario Hydro should take a broader examination in the future planning of the province and final decision should rest with the government and the people.

2. The location of generating stations should be closer to the area of greatest need.

3. Electrical side effects and some crops are incompatible.

4. Vast programmes like the Bruce create a much larger impact on society than those which are smaller.

5. Some lands in Ontario have the potential to produce much more than others. It is the potential which must be protected.

6. We give a prayer for our children, their children and their children’s children. May they always have food on their tables as we have had in generations past. Waste not, want not.”

Environmentalists were very active before the Commission as indeed they have been in our society in the last ten years. An umbrella statement capturing their general concern was given in Cornwall: -

“We are blissfully ignorant of the immediate and long-term effects on our lives and those of generations to come, created by industrial progress throughout our country.

Some of us in Cornwall and district however, have been shocked by the realization that industrial progress has been so great that little or no consideration was given to our surrounding environment, thus adversely affecting the health and well-being of our people.”

More specifically, environmental concerns were expressed on such topics as the effects of particulate matter, sulphur and nitrogen oxide emissions caused by the burning of fossil fuels, the effect of thermal discharges into the Great



Lakeview Thermal Generating Station

Lakes, and the usage and ultimate disposal of radioactive materials associated with nuclear generating stations.

Although Canada is a major source of uranium and the CANDU reactor has achieved world wide recognition, one participant alluded to the following problem: -

“Before the CANDU nuclear generators can be placed in the framework of planning for the years 1983-1993 and beyond, much work will have to be done to find satisfactory answers to the as yet unsolved problems of handling, processing and storing spent reactor fuel and of ensuring full protection of the public against the radioactivity which results from nuclear fission.”

At its most extreme, the opposition to nuclear reactors was put like this: -

“We may continue to discuss technicalities but the real argument is not the safety of these plants or the possibility of an accident. Even the absolutely safe plant — should it ever exist — is unacceptable because any nuclear reactor produces more radioactive material. In the end, the greatest danger will be the permanent presence of disproportionately large amounts of radioactive material on this earth. This involves fundamental and long term risks. If these risks have to be taken, they should be taken in those cases where there is absolutely no alternative.”

An indirect, albeit important, environmental concern, was raised by a partici-



Spent Fuel Bundles in a Storage Bay

pant at Sault Ste. Marie who, with reference to the question of the export of electric power, stated: -

“The idea of exporting power at the expense of our environment is untenable.”

Whether they were growth or environment oriented, many advocated alternative methods of power generation. In particular, solar energy came in for a lot of attention. Its capabilities were put succinctly by a participant in the London hearings: -

“The other possibility, the one I want to spend some time on, is solar power. The sun, as I said before, is a fusion reactor. It is working quite nicely and quite safely, 93 million miles away. It is expected to keep on going for 5 billion years so there is no problem of its reliability and its renewability. The staggering fact about solar energy is that in a period of two weeks the earth receives from the sun an amount of energy equal to the total known world reserves of coal, oil, natural gas and uranium, on the total surface of the earth two weeks to get that much energy.”

Other people suggested wind-power and one participant in Kingston brought the questions of conservation, innovation and life-style into one effective focus: -

“In conclusion may I say that we have operated a solar-heated, wind-powered clothes drier at my home for many years. It's called a clothes line.”



In contrast with the capital required for such a small domestic system, the future capital requirements for the expansion of the electric power system by any means are immense. This was highlighted in Peterborough when it was stated: -

"Thirdly, in terms of capital requirements, I hope that the future planning of Ontario Hydro will be considered in the context of the wider priorities of the Canadian economy as a whole. Canada could require, over the next decade, \$150 billion worth of capital and up to \$40 billion of that in terms of some of Ontario Hydro's own projects. The Ontario Hydro figures are from the press.

This pattern could mean massive capital inflows on the short term for both Ontario and for Canada and this could increase the upward pressure

on the levels of the Canadian dollar and decrease the competitive position of Canadian exports as a result. Ontario Hydro in its planning must look at that in terms of the wider economic implications.

In addition, capital inflows tend to be inflationary. They tend to aid more and more capital chasing the same number of goods and services.

Another point, if we attempted to then internally finance all this future development, we would in fact, be tapping off capital which will be needed in the future for secondary manufacturing, for housing, for hospitals, and for other goods and services in the Canadian economy."

There were of course a great many more areas of concern but the conservation-growth dilemma; the urbanization of agricultural land dilemma, the environmental and health consequences of siting large generating plants and the capital cost necessary to finance them were the overriding themes in all our hearings.

Plus education — education in the schools about the dominant influence and the effective use of energy; education of a consumer oriented society to realize the implications of its conspicuous consumption and moral implications of our advanced standard of living in a world which does not, for a majority of people, share them.

The Commission remembers with particular pleasure the comments of a London high school student at the very first public meeting who stressed that after you invent the future you must then build the future, a process whose start must be in the educational system and especially in education about the availability, utilization and conservation of all forms of energy.

In order to achieve this, a group of students from Woodroffe High School in Ottawa, said: -

"Suggestion — well-informed speakers should be sent to high schools in Ontario to inform the younger generation of the severity of the coming electrical power situation. If energy is going to be conserved it is our generation that will do it, the older generation is beyond hope."

An older participant in Hamilton, said that we should: -

"Consider the formation of a committee to establish priorities for a public education program on energy matters to increase 'awareness' of all matters relating to 'energy'."

This was expanded at some length by a participant in Peterborough, who put both adults and school children together in his suggestion: -

"At the moment our technological achievements are outstripping our ability to understand the consequences of our so-called 'progress'. How do we get caught up? Only by the proper kind of education. . . . It seems to me absolutely fundamental that if we expect wise decisions to be made about energy, food, population, resource and land use by our high school students in a few years' time when they are eligible to vote and make decisions of consequence, then they must, and I repeat MUST, understand these interconnections thoroughly, or at least basically, before the day they cast their vote.

The majority of the adult public . . . has a very sketchy view of the items mentioned above, and finds out about them mainly as a succession of crises. The natural reaction is to ignore them, or consider them distasteful

because, firstly, they are not understood and, secondly, they disturb the normal pattern of their life and create anxiety.

. . . therefore, a study programme is necessary for adults also."

A young representative from the Wikwemikong Indian Reserve put it another way when she stated, concerning her people: -

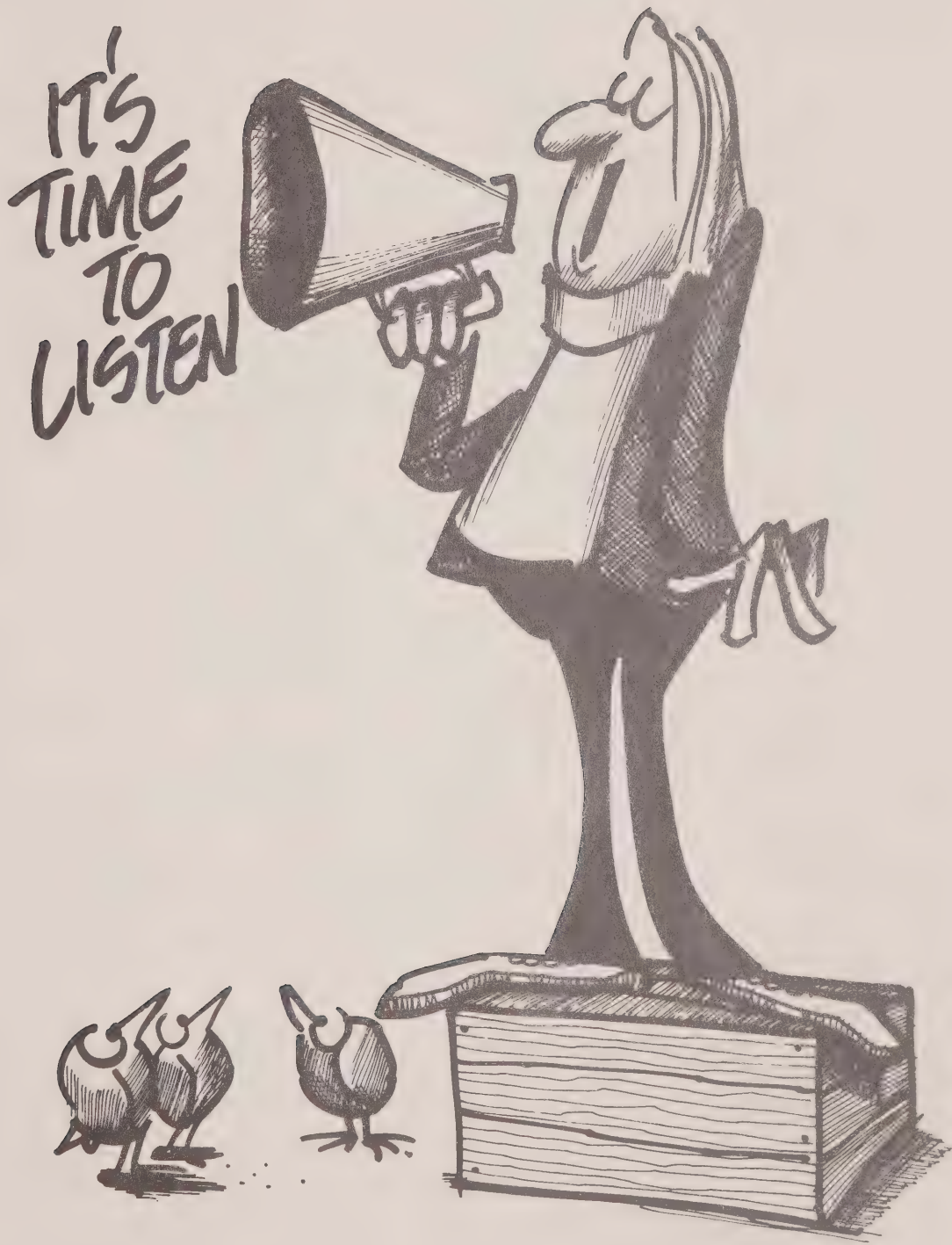
"The Porter Commission is probably nothing more than a title to them and I would like someone to go over there and talk to them and possibly someone in our language explain what is going on. I am sure everyone knows there is something going on and something we should be concerned about but we don't have that much of an idea."

All of which leads to the moral considerations which were brought eloquently to the Commission in Sudbury by Chief McGregor of the Whitefish Band who said: -

"We are concerned with the preservation of our lands and the quality of life as it now exists on our reserve. We do not want our future generations to be handed lands which have been polluted and destroyed by man. We want to give our children the land in the same condition our forefathers gave it to us. Where else can you go to find water as fresh and as clean as it was a hundred years ago?"

We were also reminded that: -

"North Americans (7% of the world's population) use up half of the world's resources. The two-thirds of our world living in conditions of poverty, illiteracy and near starvation will not long allow this situation to continue."



III Those Who Provided Written Submissions

As we have already mentioned, a broad cross-section of the people of Ontario not only attended the preliminary meetings but many of them took a great deal of trouble to prepare written submissions. Because of the rather informal nature of the meetings, it was not always easy to obtain a participant's full name and initials and, although we are confident that the following lists are reasonably accurate, there may in fact be some omissions and minor errors. We ask for your indulgence in this regard. Those who made written submissions, their affiliations where appropriate and where they submitted are named below:-

LONDON — October 29-30, 1975

PRESENTER

AFFILIATION

Dr. C.A. Hooker and R. R. Van Hulst

Ms. P. Chefurka

Mr. A.L. Furanna

Mr. D. Craig & Mr. T. Clifford

Dr. J. Bolton

Ms. J. McGowan &

Miss M. Cartwright

Dr. J. Sullivan

Ms. M. Fisher

Mr. M. Reynolds

Mr. A. Brown

Dr. R.K. Swartman

Mr. P. Carroll

Mr. B. King

Mr. D. Peterson

Mr. P. Durand

Mr. A. Walpur

Mr. N. Pearson

New Democratic Party of Ontario

London P.U.C.

London Board of Education

Urban League of London

Southwestern Ontario Group

Consumers' Association of Canada
(London)

Diesel Division, General Motors of
Canada

London Chamber of Commerce

CANTDU

M.P.P. (London Centre)

Huron Power Plant Committee

Huron County Federation of
Agriculture

WINDSOR — October 31, 1975

Mr. S.M. Duffus

Mr. A. Harris

Mr. H.J. Zamodits

Wallaceburg Hydro Electric System

Polysar Ltd.

SUDBURY — November 4, 1975

Mr. F. Myers	Manitoulin Association for Safe Power
Mr. E. Burt	
Mr. R.T. Williams	North Bay Hydro
Mr. C. Dow	True North Communications
Rev. H.L. Bertrand &	
Dr. F. Robillard	Le Voyageur
Mr. S. Yawney	Sudbury District Labour Council
Mayor Fabbro	City of Sudbury
Mr. J. McGregor	Whitefish River Indian Band
Mr. D. Lacroix	Sudbury Regional Development Corporation
	Sudbury and District Chamber of Commerce
Dr. P.M. Nolan	Birch Island Community Association
Mr. B. Wilkins	Greenpeace Organization
Mr. L. Reid	Manitoulin Secondary School
Teachers — Ms. P. Myers	
Ms. Joy' Robertson	
Students — Sandy Runnalls	John Turner
Shelva Bond	Jim Patterson
Bryan Dick	Kerry Garvey
Robert Fox	Bob Beange
Sally Gaikzheyongai	Katherine Haines
Marie Wilson	Jannis Wilkinson
Debbie Collins	Cathy Cranston
Pat Garvey	Kathie Strickland
Dave Barnes	Laura Woods
	Friends of Rainbow
Ms. C. A. Cote & Ms. E. Marshall	Hydro Electric Commission of Sudbury
Mr. R. Levert	The Manitoulin Expositor (Issue of October 30, 1975)
Ms. J. Robertson	North Bay Dairy Ltd.
Mr. D. S. Harrison	Northern Ontario Dairymen's Association
Mr. F. Rogers	Eplett Dairies Co. Ltd.
Mr. M. Schneider	
Mr. D. Burt	
Mr. A. Greenman	
Mr. M. Noland	
Ms. P. Best	
Mr. & Mrs. H. Schlotzer	
Mr. J. Dunlop	Municipality of Howland
Mr. & Mrs. W. Crawford	

SAULT STE. MARIE — November 5, 1975

Mr. H. L. Harris	Sault Ste. Marie P.U.C.
Mr. R. L. Thomas	Broken Quarter Association
Mr. Hogg	Great Lakes Power Company Ltd.
Mr. L. A. Lyons	
Mr. J. R. Littlefield	Sault Ste. Marie Chamber of Commerce

TIMMINS — November 6, 1975

Mr. R. J. Byrnes
Mr. Bordeleau

Mr. T. E. Bell
Mr. R. H. Pope
Mr. M. Zudel
Ms. F. Havill

Timmins Board of Education
Town of Kapuskasing and Kapuskasing
P.U.C.

City of Timmins

TORONTO — November 11,12,13, 1975

Mrs. R. Jackson

Dr. S. J. Townsend
Mr. P. S. Martin
Mr. B. Prentice
Mr. D. K. White
Mr. B. Binning

Mr. W. B. Magyar
Mr. J. R. Gray
Ms. D. Montgomery
Mr. J. Bearden

Mr. G. Dupuis
Mr. R. Touw
Mr. J. Rootham
Mr. R. M. Dillon

Mr. R. J. Bluhm
Mr. D. Leach

Mr. E. C. Nokes
Mrs. G. Rolling & Mr. G. E. Kaiser
Mr. B. Taylor & Mr. R. Cunningham
Mr. W. F. M. Brown
Ms. T. Green

Mr. W. Peden
Mr. J. A. Weller
Ms. E. Hall & Ms. M. Calmain
Mr. R. Symmes, Mr. G. Cooper and
Mr. B. Armstrong
Mr. E. H. Fraser
Dr. A. Timms
Mr. C. Taylor
Dr. R. L. Evans
Mr. I. A. Amonsens
Mr. E. Fraser
Mr. T. J. Curtis

Consumers' Association of Canada
(Ontario)
SJT Consultants Limited

Toronto Hydro
North York Hydro
Toronto Construction Association (General Contractors Section)
Technical Economists Limited

Canadian Environmental Law Association
South East Spadina Steering Committee,
Grange Park Resident's Assoc., Ward Six
Community Organization, The Federation
of Metro Tenants
Urban Development Institute
Workgroup of Canadian Energy Policy

Deputy Minister, Ontario Ministry of
Energy
Ontario Pork Producers Marketing Board
H. Derrick Leach Consulting Resources
Ltd.
Ontario Municipal Electrical Association
Association of Municipalities of Ontario
Ontario Federation of Agriculture
The Chemical Institute of Canada
National and Provincial Parks Association
of Canada
Energy Probe
Canadian Nuclear Association
Voice of Women

Sierra Club of Ontario

Conservation Council of Ontario
Zero Population Growth of Canada

Regional Municipality of Peel
Scarborough P.U.C.

OTTAWA — November 17, 18, 1975

Mr. E. S. Bell
Ms. D. McMullen

Mr. R. Peters
Dr. J. T. Rogers
Mr. F. L. G. Askwith
Mr. A. Michrowski
Mr. R. B. Gibson
Mr. B. Kelly

Mr. T.J.F. Lash
Mr. E. Puccini
Ms. M. Gregory
Mr. D. Treleaven
Dr. J. T. Rogers & Dr. R. Lukasiewicz

Mr. J. Collins

Dr. E. P. Cockshutt

Dr. D. C. Stephenson

Mr. C. K. Hurst

Mr. G. Webb
Ms. S. Sear, Ms. C. Smith
and Ms. C. Renwick
Mr. J. Klassen
Dr. G. Merriam

Canadian Coalition for Nuclear Responsibility
Pollution Probe Ottawa
Energy Research Group
Ottawa Hydro

Workgroup on Canadian Energy Policy
Office of Energy Conservation, Department of Energy, Mines and Resources

National Capital Environmental Council
Committee for an Independent Canada
Carleton University Energy Research Group
Solar Energy Society of Canada, Ottawa Chapter
Energy Project Co-Ordinator, National Research Council
Building Services Section, National Research Council
Parkdale Community Development Corporation of Ottawa

Woodroffe High School

CORNWALL — November 19, 1975

Mr. E. Smith
Mr. E. Lalonde
Mr. G. A. Revell
Mr. D. D. Bowie
Mr. J. O'Neill

Glengarry Anti-Pollution Committee

National Farmers Union District 1

OWEN SOUND — November 25, 26, 1975

Mr. J. A. Gurnham
Mr. R. D. Fenton

Mr. Hawkins
Mr. F. Coombs
Mr. L. Creighton
Mr. J. Hartford
Mr. P. Wotstenholme

Port Elgin and District Chamber of Commerce
Radio Station CFOS Owen Sound
County of Dufferin

Tiny Tay Peninsula Planning Board

WINGHAM — November 27, 1975

Mr. D. McKee
Ms. M. Penfold
Mr. L. Moore

Mr. E. Vines
Dr. A. L. MacKay
Mr. H. Hayter

Mr. D. McCallum

Mr. L. Luther
Mr. H. Feldmann
Mr. E. van Donkersgoed
Mr. T. McQuail
Mr. W. Gregson
Mr. A. Vos
Mr. L. Murray

CANTDU

Concerned Farmers of the United Townships
Wallace Township
Listowel Veterinary Clinic
Huron County Beef Improvement Association
Bruce-Huron Powerline Negotiating Committee
National Farmers Union, District #5

Christian Farmers' Federation of Ontario

Ontario Junior Farmers
Huron Power Plant Committee
Reeve, Maryborough Township

HAMILTON — December 2, 3, 1975

Mr. L. Jackson
Ms. A. H. Jones

Mayor V. K. Copps
Mr. R. E. Panter
Mr. H. Hind
Mr. Grayorski
Dr. R. E. Jervis

Rev. P. S. Mo
Mr. C. E. Babb
Mr. G. Marshall
Mr. J. Hazlitt

Mr. Hammond
Mr. E. T. W. Bailey
Mr. K. G. Watson
Mr. J. H. Walker
Dr. J. C. McKegney

Burlington P.U.C.
Chairman, Hamilton-Wentworth Regional Municipality
City of Hamilton
Consumers' Association of Brantford
United Steelworkers of America
City of Burlington
University of Toronto, Faculty of Applied Science and Engineering

Regional Municipality of Halton

"Towers or People" Group

Hamilton Hydro Electric Commission

Town of Oakville

WELLAND — December 4, 1975

Mr. R. Rawsthorne

Mr. W. G. Lockett
Mr. W. K. Voss

Mr. W. S. Jennings
Mr. R. A. Slavickas

St. Catharines & District Chamber of Commerce

Association of Major Powers of Consumers of Ontario
Niagara Hydro Electric Commission

THUNDER BAY — December 8, 9, 1975

Mr. S. B. Feidlers
Mr. T. Miyata
Mr. J. Nelson
Mr. M. Redfern

City of Thunder Bay

Mr. C. H. Cotton
Mr. M. H. Kelly
Mr. J. Perrott
Dr. J. Hart
Mr. K. McFarland
Mr. R. Pinkowski
Mr. W. H. Calder
Mr. Rutherford
Mr. T. Robinson
Mr. W. J. Martin
Mr. C. Ericksen
Mr. G. Martin
Apple Cider Press

“Help Oust Pollution From Ontario”
Committee (HOPE)
Great Lakes Paper Company Ltd.
Atikokan Hydro
Armstrong Development Corporation
Faculty of Science, Lakehead University
“People to Clean Up Lake Superior”
Thunder Country Conservation Club

Improvement District of Beardmore
Nipigon Chamber of Commerce

125 Atikokan Residents

KENORA — December 10, 1975

Mr. J. Miaszkiewicz

Kenora Hydro

KINGSTON — December 15, 16, 1975

Mr. J. H. Roughly & Mr. Waddington
Mr. H. N. Britton
Mr. M. H. Edwards
Mr. R. A. Fray
Mr. E. Kaiser

Brockville P.U.C.
Belleville P.U.C.

Ms. M. Phipps-Walker

Kingston P.U.C.
Lennox and Addington County Federation
of Agriculture
Association of Women Electors of King-
ston Area

Mr. R. Moreland & R. Langstaffe
Dr. D. L. Atherton
Mr. D. B. Good, Q.C.
Ms. I. Mooney

Frontenac Federation of Agriculture

Mr. & Mrs. A. Bonwill
Mr. L. Bertin
Mr. G. Spragge
Mr. S. Foster
Ms. L. Devlin

Kingston Downtown Business Association
Cataraqui, Frontenac and St. Lawrence
Wards Ratepayers Association

Frontenac Historic Association

Consumers' Association of Canada (King-
ston)

Mr. C. Lafkas
Mr. J. B. Sampson
Mr. G. E. Radcliffe
Dr. D. B. McLay

Kingston Area Planning Board

PETERBOROUGH — December 17, 1975

Mr. W. H. Powell	Peterborough P.U.C.
Mr. H. W. L. Goering	
Dr. C. Carter	
Dr. R. Page	
Ms. M. Currelly	Northumberland Federation of Agriculture
Ms. P. Lawson	
Mr. J. H. E. Moynes	Lindsay Hydro Electric Commission
Mr. D. Sadler	
Mr. P. Sanborn	
Mr. G. R. Hickey	Peterborough-Victoria- Northumberland and Newcastle Roman Catholic Separate School Board

LISTOWEL — January 22, 1976

Mr. A. Vos	Huron Power Plant Committee Township of Stephen
Mr. A. Oliver & Mr. E. Hackman	Grey County Hydro Corridor Committee
Mr. T. McQuail	
Ms. D. Newell	
Mr. M. Campbell	Bruce County South Planning Area
Mr. W. Benson	Wellington Federation of Agriculture
Mr. E. Vines	Wallace Township
Mr. C. McCourt	Elma Township
Mr. A. Walper & Ms. B. Brown	Huron County Federation of Agriculture
Mr. H. Davey	Perth County Federation of Agriculture
Mr. H. Feldman	
Mrs. Manion	
Mr. H. Winkel	Junior Farmers of Howick Township
Dr. A. McKay	Listowel Veterinary Clinic
Mr. J. Stirling	Junior Farmers of Ontario

IV **Current Activities**

RESEARCH

The preliminary public meetings thus brought into preliminary focus some of the larger issues which public debate will doubtless sharpen as the Commission's work proceeds.

They also brought forward a large number of technical matters, matters which must be researched in order that this debate can be as well-informed as is humanly possible.

To elicit that information, the research team of the Commission has now grouped its research into five main areas. These areas will be intensively investigated. Existing studies will be evaluated and categorized to avoid any duplication of effort, but where there are gaps, original work will be undertaken.

The areas are: -

- a) The reliability of the electric power system with special reference to the need for excess generation and transmission facilities.
- b) The need for energy conservation with special reference to the effective utilization of electrical energy.
- c) Problems relating to land use with special reference to the generation and transmission of electric power.
- d) The environmental and health implications of electric power generation (fossil and nuclear) and transmission.
- e) Alternative and emerging technologies.

Reliability of Electric Power Supply

The electric power system which has been developed by Ontario Hydro, is so ubiquitous, is so taken for granted, that few of us stop to think how reliant we are on it. Only those of us who have endured, and suffered through, major electric power black-outs such as the notorious one in Ontario and New York on November 9, 1965, can fully appreciate the meaning of how important it is to maintain a reliable electric power system. One need only recall the number of people who were stuck in elevators, the day-old chicks which perished because the supply of heat was cut off, the cows that remained "unmilked", the train services which were interrupted, the food which went bad because freezers were inoperative, etc.

Because the electric power system, like all technology, cannot be perfect, it must be checked and monitored continuously and serviced periodically. Such routine maintenance procedures for thermal generating stations and high-vol-

Office
OVERSEAS
122nd YEAR, No. 36, 144
METRO

The Globe and Mail

Toronto, New York among dark cities

Toronto, Wednesday, November 10, 1965

WATCH THE WEATHER AT
CANADA LIFE
Cloudy showers
Toronto high 40
low 30
FOR OFFICIAL WEATHER CHANGES
42 PAGES
TEN CENTS

MILLIONS BLACKED OUT

The biggest power blackout in North America today, which left millions of people in darkness, was caused by a combination of factors, including a major transmission line failure and a shortage of generating capacity in the affected areas.

The blackout, which began at 7:30 p.m. and lasted for several hours, affected parts of Ontario, Quebec, and the United States. Millions of people were left without electricity, including those in major cities like Toronto and New York.

The cause of the blackout was a combination of factors. A major transmission line, which carries power from the St. Lawrence River area to the Toronto area, failed. This was compounded by a shortage of generating capacity in the affected areas.

The blackout was a major disaster for many people. Those who were left without electricity had to find other ways to stay warm and to communicate. Many people were left in the dark for several hours.

The power companies are now working to restore power as quickly as possible. It is expected that power will be restored to most areas by tomorrow morning.

METRO NEWS
122nd YEAR, No. 36, 144
METRO

Toronto Daily Star

NIGHT
EDITION



THE CROWD AT KING AND BAY - SOME OF THE THOUSANDS STRANDED WHEN DARK AGES CAME LAST NIGHT



The great
power
failure

The cause

A combination of factors, including a major transmission line failure and a shortage of generating capacity in the affected areas, caused the blackout.

The extent

The blackout affected millions of people in Ontario, Quebec, and the United States. Major cities like Toronto and New York were among the areas affected.

The outcome

The power companies are now working to restore power as quickly as possible. It is expected that power will be restored to most areas by tomorrow morning.

FRI PROPOSAL

Toronto Daily Star METRO NEWS

WEDNESDAY, NOVEMBER 10, 1965

REACH FOR & READ MOST PEOPLE DO

Discomfort, no panic in Metro



The great
power
failure

POWER OUTAGE
MILLIONS OF
PEOPLE WERE
LEFT IN THE
DARK LAST NIGHT
WHEN A MAJOR
TRANSMISSION
LINE FAILED.



tage transmission lines often involve the closing down of major facilities for several weeks. However, in addition to this planned maintenance, it is virtually certain that unplanned "outages" of major facilities and key components will occasionally occur because of unforeseeable events such as major storms, material failures in generating stations, or transmission lines, effects of corrosion in heat exchanger pipes, reduced hydro capacity due to a lack of rain, etc. Hence, in order to maintain a reliable system which can cope with these events, even under peak demand conditions, Ontario Hydro has built more generating stations and transmission lines than would be required in the ideal situation in which everything worked perfectly and no maintenance was ever needed.

In other words, if the electric power system could just cope with the peak demand level (which would probably occur in December or January) in Ontario and no more, then an unpredictable event (e.g. an ice storm) at this time would result in a "black-out".

The level of excess capacity can be anything from 10% to 40% of the total system depending on the type of power generation. For systems predominantly based on hydro-electric generating stations there is no need for a high level of excess capacity because these stations are rarely subject to unforeseen distur-

bances. On the other hand, for a power system based largely on thermal generating plants, the excess capacity required may be in the order of 30%, or even more, depending on the degree of reliability required. And the level of excess capacity required to maintain what has come to be regarded as the North American reliability standard — “one day’s outage in ten years” — has increased with the mixing of hydro and thermal generating stations in a given system.

The major question which our research on system reliability will address is simply this:

Bearing in mind the high and increasing capital cost of new generating and transmission facilities, is the reliability criterion in use at present realistic?

In other words, would a reliability criterion based on one day’s outage in nine, or eight, or even seven . . . years respectively be adequate?

Reliability studies, such as the Commission is undertaking, are complex and necessitate studies of individual components as well as the system as a whole. Furthermore, the studies have to take account of demand forecasts based on such important concerns as population growth, industrial development and the impact of energy conservation.

The Conservation of Electrical Energy

Conservation of energy is really a consideration of how energy can be more effectively utilized than at present. In pursuit of this objective we have one basic study well in hand which is considering the question: How should we be expressing the “efficiency” of an industrial process or of a domestic appliance and, concomitantly, how can we improve the “efficiency” of the utilization of electric power?

Recognizing that all energy conversion processes (e.g. the conversion of electrical energy to thermal energy by means of an electric kettle, or the conversion of the energy contained in gasoline to the mechanical energy possessed by a motor car) are irreversible. Time moves in one direction only and energy cannot be recycled. Accordingly, we must seek new and more effective means of utilizing comparatively cheap energy in an era of expensive energy.

We are aware also that waste is an intrinsic aspect of all natural and man-made processes whenever energy conversion takes place. Our research will ex-

amine how the additional man-made waste energy can be minimized at least in theory. We are studying, for example, such topics as the management of the thermal waste from electric generating stations as well as the potential of such alternative sources as solar energy.

Electrical energy storage can minimize the amount of generation capacity required. Even with effective load management (trying to keep the daily demand for energy at a fairly constant level), there is a need to supply peak generating capacity. Some of this capacity can come from so called hydraulic pumped storage units. During daily periods of low demand, water is pumped into a reservoir and then during periods of peak demand, this stored



capacity is used to generate peak power. The Commission, in addition to looking at further potential for hydraulic pumped storage in the province, will be looking at other storage technologies, such as CANDU — MHD, wind, storage batteries and so on.



Land Use and Transmission Systems

No consideration, however superficial, of energy conservation would be complete without a study of perhaps man's most important basic resource — agricultural land. It is well known that the agricultural lands of Southwestern Ontario are some of the finest in North America and we must conserve them, because good agricultural land, once utilized for industrial purposes and for urban growth, is, of course, gone forever.

A study of this problem is being undertaken on behalf of the Commission by Professor Norman Pearson of The University of Western Ontario. Its objectives are: -

- a) To identify the factors associated with the construction of electricity supply facilities (generating stations and transmission lines) which have changed or could change the use of agricultural land.
- b) To identify the factors associated with the continued operation of electricity supply facilities which have changed or could change the use of agricultural land.

- c) To identify regional development patterns subsequent to the construction of a major electricity supply facility.
- d) To examine each of the above three subject areas primarily from the point of view of effects on food production, local government, growth management and land-use control policies.
- e) To include numerical examples of required acreage for major generation facilities and transmission corridors.

In view of the comprehensive nature of this study, we have presented it somewhat more formally than in the case of the other research areas.

Environmental and Health Studies

It is well known that, in common with many industrial processes, the generation and transmission of electric power gives rise to a wide variety of environmental, health and safety problems. For example, the following are of particular significance: -

- a) The effluents from the combustion of the fossil fuels (especially coal and heavy fuel oil) include solid particulate matter, sulphur oxides, nitrogen oxides and the emission in minute quantities of such toxic substances as mercury and radio-active materials.
- b) The so-called fuel cycle for the generation of electric power by burning uranium consists of uranium mining, the refining of uranium ore, and the disposal of the radioactive waste. Each of these processes can cause damage to the environment and the potential, immediate and long term health hazards are of central significance.
- c) The large discharges of thermal wastes, which may amount to millions of gallons of water per hour, from generating stations into, for example, Lake Ontario, probably has an impact on the lake environment which on one hand may be desirable, but on the other, may be undesirable in its impact on the fauna and flora. Furthermore, discharges from heavy water plants into the Great Lakes may also have important environmental implications.
- d) The environmental implications — physical, biological and aesthetic — of high voltage transmission lines and the health hazards related thereto are also under detailed consideration.

In view of the complex nature of these environmental problems and, in some cases, the associated health hazards, it is unlikely that the Commission will undertake much original research in these areas — the time involved would be much too long. However, we are undertaking a comprehensive survey of the existing literature.

Alternative and Emerging Technologies

During the period 1983-1993 (and beyond) there will be many technological advances in the energy field. A highly pertinent question is: "Are there any viable alternatives on the horizon to fossil and nuclear-fired generating stations?"

A very important alternative is, of course, hydro electric power but, in Ontario at least, although hydro electric power will continue to play a most significant role in the province's electric power requirements, the potential for new sites appears to be limited.

The other alternatives which were mentioned frequently during the preliminary public meetings were solar energy, wind energy, geo-thermal energy (i.e. thermal energy which can be extracted from the earth's crust), and fusion energy (i.e. controlled fusion which is a process closely related to the way thermal energy is generated in the sun). Other important potential sources of energy, albeit on a somewhat reduced scale, which were identified during the preliminary public meetings, are based on the burning of solid wastes and the bio-mass approach in which algae, certain vegetation and fast-growing trees can be converted into fuels.

Members of the Commission and its staff are undertaking extensive literature searches, attending relevant scientific and engineering conferences and talking with key scientists, engineers, economists, sociologists and town planners, in order to evaluate the potential of these alternative sources.

In the area of electric power transmission, the only alternative technology to the conventional power lines and towers appears to be the underground cable. This might take a variety of forms: air-insulated, cryogenic (the cable is kept at a very low temperature by creating an envelope of liquid helium), and underground cables designed on conventional lines. The major problem at present is, however, an economic one. The technology appears to be rapidly developing for the above alternatives, it is just the cost which has to be made realistic. Our investigations will thus be directed toward an assessment of the economic viability of underground high voltage transmission cables, and their utilization on a comparatively large scale, especially in the rural areas (many urban areas are already serviced by relatively low voltage underground cables) with the end of the century in mind.

The Ontario Hydro system is essentially an alternating current system. Recent developments in high voltage direct current transmission technologies and continuing interest in inter-provincial links will necessitate an evaluation of this technology.

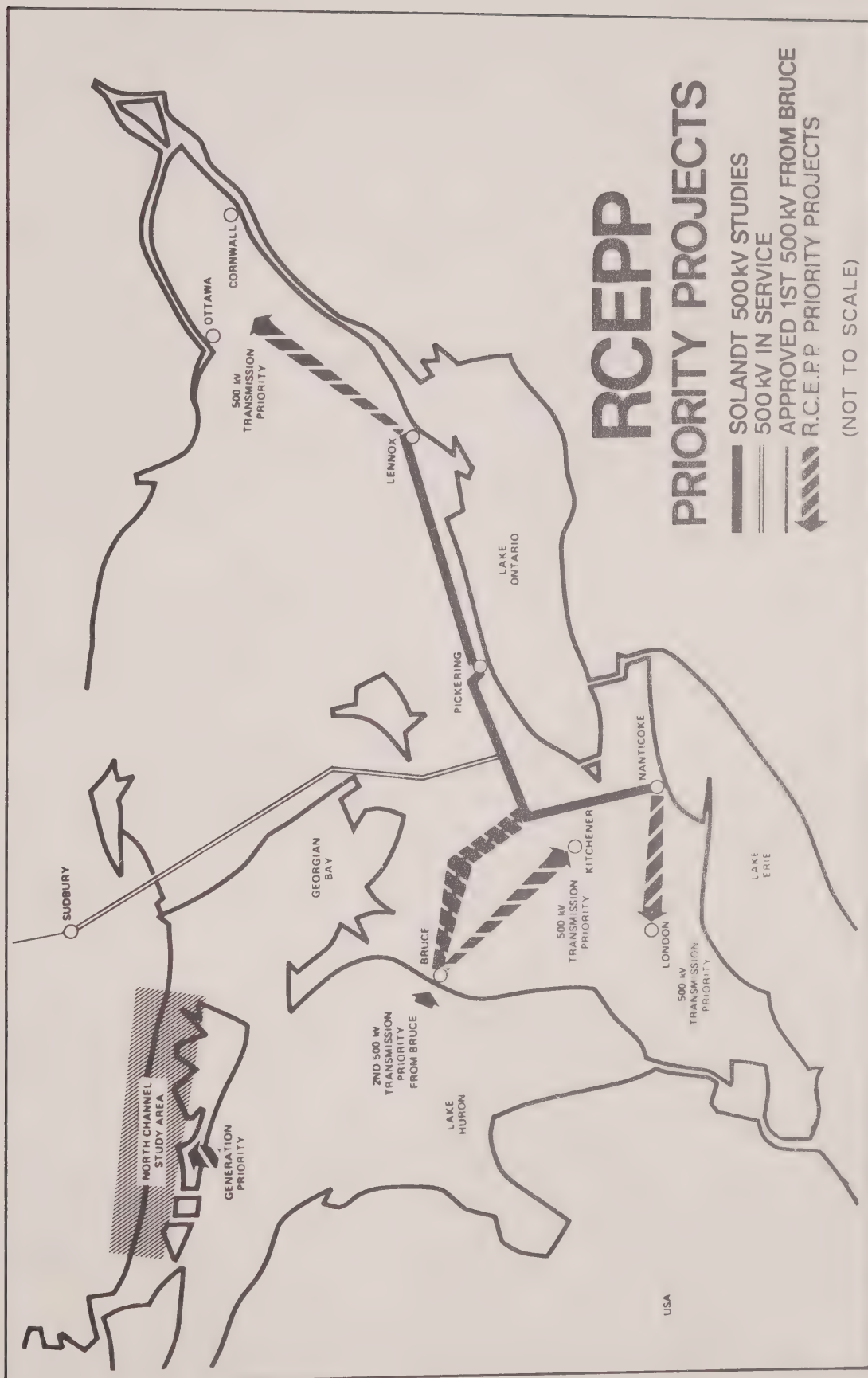
PRIORITY PROJECTS

The so called "priority projects" which were included in the terms of reference gave the Commission the specific mandate to:

"Consider and report on a priority basis on the need for a North Channel Generating Station, a second 500 kV line from Bruce, a 500 kV supply to Kitchener, a 500 kV line from Nanticoke to London, and a 500 kV line in the Ottawa/Cornwall area, and other projects as may be directed by the Lieutenant Governor in Council."

As is to be expected, the local prospect of a particular identifiable project on the scale of a new generating plant or a 500 kV transmission line corridor tends to encourage and focus public reaction in any area under consideration. The Commission thus heard from a considerable number of people particularly regarding any proposed North Channel Generating Station and the suggested second 500 kV transmission line from the Bruce Generating Station.

But beyond these local interest groups, the Commission received a number of well-argued submissions in support of a consideration of the "priority projects"



within the context of the main inquiry, and opposed to any consideration of them in advance of and separate from a broad study of future electric power planning for Ontario. The Commission finds these arguments to be cogent and is now of the opinion that: -

“The Public Information Hearings must, of necessity, precede an in-depth study of the Priority Projects.”

Recent announcements by Ontario Hydro dealing with changes in their construction schedule may have a bearing on the Priority Projects and this will have to be assessed at the Public Information Hearings.

THE PUBLIC INFORMATION HEARINGS

The purpose of these hearings which are occurring during the period March 31st to July 22, 1976 is to obtain basic data and information from Ontario Hydro, Ministries and agencies of the Ontario Government and others pertaining to the topics listed below. The Commission proposes that these bodies should provide a detailed explanation of their planning procedures, criteria and methods of relating to such topics.

This information will be utilized by the Commission as the data and information base for further hearings related to the subjects mentioned in the Commission's terms of reference including the main inquiry. The data and information, in summary form where feasible and appropriate, will be made available to members of the public who wish to participate in the hearings at “resource centres” across the province.

The Public Information Hearings will deal with the following matters: -

1. Public participation in the planning processes relevant to the Commission's terms of reference and the accessibility of information.
2. Technological developments and their assessment in the following general areas: -
 - a) the generation of electric power, using nuclear and fossil fuels, or by alternate or emerging technologies;
 - b) the transmission of electric power;
 - c) power system control;
 - d) heavy water production.
3. Environmental and health factors considered in generation and transmission planning, design and construction, operation and maintenance, with particular reference to:
 - a) the management of thermal wastes;
 - b) the management of radioactive wastes;
 - c) heavy water production.
4. Socio-economic factors considered in generation and transmission planning, design and construction, operation and maintenance.
5. Provincial development and land use factors considered in electric power planning.
6. Energy utilization, policies and progress.
7. Capital construction programme and financing.
8. The availability of fuel supplies for power generation.

9. Load forecasting.
10. Reliability and security criteria and practice.
11. Generation planning processes.
12. Transmission planning processes.
13. Impact of rate structures and rate levels on load growth and utilization.

As indicated at this time, the purpose of the Public Information Hearings is to inform the Commission and the participants in the inquiry; to explain rather than to justify; to deal with the “how” and the “what” rather than with the “why”.

The information, documents and data obtained in the information hearings will be available not only for the purposes of the Commission in the main inquiry, but also for the purposes of the participating public, who will have access to all the material obtained at the hearings. This data and information will be available in the Commission’s offices and regional depositories at Thunder Bay, Sudbury, Ottawa and London. Summaries of the information and data will be prepared and made available through public libraries.

V The Way Ahead

By now it will be clear to everyone that the task facing the Commission is a formidable one. It becomes more formidable with the passage of time because society is in an era of rapid change. We live in an age of transition: transition from an industrial to a post-industrial society. Each one of us must become increasingly aware of the urgent need to shape, to the best of our ability, the future we seek. In particular, we suggest that special attention should be paid to some key indicators of the direction of social change. These include: -

- Food and Nutrition
- Energy availability
- Indices of economic activity
- Health
- Education
- Human freedoms
- Quality of work
- Employment situation
- Housing — including household facilities
- Social Security
- Recreation and Entertainment
- Transportation

Conscious of these indicators and of the present public concerns relating to our mandate, and with the Public Information Hearings already launched, the Commission now sees three major stages ahead: -

- 1) The “Conceptualization Stage.” (August-October, 1976)
This involves the development of alternative scenarios (or models) based on alternative sets of potentially viable policies and choices which will provide a basis for discussion and debate at the next stage;
- 2) The “Debate Stage.” (October 1976-May 1977)
This stage is in effect the main part of the inquiry. Having ascertained the nature of the issues and concerns of the people; having acquired information and methods of utilizing information relative to these concerns (the “what” and the “how”), the Commission will proceed to the “debate stage”; the “why”. This stage will give ample opportunity for all interested groups and individuals to participate in a thorough examination of the issues. The alternative scenarios will hopefully help to orient the debate towards the end of the century rather than the present.

3) The "Evaluation Stage." (June-October, 1977)

This stage will be concerned with the gathering together of the vast amount of information collected during the Commission's public meetings, hearings, "think tanks", and other activities which will permit the Commission to evaluate and to weigh this information and to develop a framework for the Final Report and, most importantly, for the Commission's recommendations to the Government.

After the Commission has completed its task, by the end of 1977, there will be probably the most important stage of all — the assessment by the Government and the people of Ontario of the implications of the Commission's findings, the proposed framework for decision-making, and the recommendations as a whole.

Before that, however, we must all work towards fulfilling the high aspirations which were outlined at the establishment of this Commission. We are aware that this Commission is probably the first of its kind ever to have been undertaken anywhere in the world. That puts a massive responsibility on us as Commissioners but an even more massive responsibility on the people of this Province. Let us together show them our mettle.

Preliminary Meetings Schedule

Place	Date and Time	Attendance	Written & Oral Participants
London	October 28, 8 p.m.	125	15
London	October 29, 2 p.m.	60	12
London	October 29, 8 p.m.	65	14
Windsor	October 30, 3 p.m.	45	2
Windsor	October 30, 8 p.m.	125	10
Sudbury	November 3, 8 p.m.	75	12
Sudbury	November 4, 2 p.m.	110	13
Sudbury	November 4, 8 p.m.	100	18
Sault Ste. Marie	November 5, 8 p.m.	125	13
Timmins	November 6, 8 p.m.	65	10
*Toronto	November 12, 8 p.m.	250	14
Toronto	November 13, 2 p.m.	150	9
Toronto	November 13, 8 p.m.	110	13
Toronto	November 14, 10 a.m.	55	17
*Ottawa	November 17, 8 p.m.	95	9
Ottawa	November 18, 2 p.m.	75	12
Ottawa	November 18, 8 p.m.	75	13
Cornwall	November 19, 8 p.m.	65	11
*Owen Sound	November 25, 8 p.m.	50	9
Owen Sound	November 26, 2 p.m.	35	7
Owen Sound	November 26, 8 p.m.	35	8
Wingham	November 27, 8 p.m.	325	29
*Hamilton	December 1, 8 p.m.	125	16
Hamilton	December 2, 2 p.m.	40	11
Hamilton	December 2, 8 p.m.	25	9

Place	Date and Time	Attendance	Written & Oral Participants
Welland	December 3, 8 p.m.	55	10
*Thunder Bay	December 8, 8 p.m.	65	9
Thunder Bay	December 9, 2 p.m.	50	13
Thunder Bay	December 9, 8 p.m.	35	10
Kenora	December 10, 8 p.m.	40	12
*Kingston	December 15, 8 p.m.	115	16
Kingston	December 16, 2 p.m.	40	12
Kingston	December 16, 8 p.m.	40	8
Peterborough	December 17, 8 p.m.	75	11
Listowel	January 22, 7:30 p.m.	150	21
TOTAL		<u>3,070</u>	<u>428</u>

Participants refer to all those who spoke at each meeting — i.e. includes presentation of both written and oral briefs, and informal comments.

*denotes illustrated lectures — all other meetings were preliminary meetings at which presentation of briefs was scheduled.

cover: John Neate
design: Cubby Coatsworth
cartoons: Trevor Hutchings

